

## Product Instructions

# Reveal Q+ for Ochratoxin

### The Toxin

Ochratoxin, commonly produced by the molds *Aspergillus ochraceus* and *Penicillium viridicatum*, can be found in corn, barley, green coffee, and various dried fruits. Ochratoxin may be present in conjunction with aflatoxin, one of the most potent naturally-occurring carcinogens. In fact, ochratoxin is a suspected carcinogen.

Ochratoxin affects kidneys in animals exposed to naturally-occurring levels of this mycotoxin. Turkeys and other poultry exhibited lower productivity levels during field outbreaks of ochratoxicosis. Symptoms included slowed growth and decreased feed conversion. It also has been known to affect egg production in laying hens.

The best protection against mycotoxins is monitoring for their presence in feeds and foods. That means testing all along the pathway from initial harvest of grains to the finished product.

### Intended Use/User

Reveal® Q+ for Ochratoxin is intended for the quantitative analysis of grain and grain products for Ochratoxin. The test kit is designed for use by quality control personnel and others familiar with commodities possibly contaminated with Ochratoxin.

### User Responsibility

- Users are responsible for familiarizing themselves with product instructions and information. Visit our website at [neogen.com](http://neogen.com), or contact your local Neogen representative or authorized distributor for more information.
- When selecting a test method, it is important to recognize that external factors such as sampling methods, testing protocols, sample preparation, handling, laboratory technique and the sample itself may influence results.
- It is the user's responsibility in selecting any test method or product to evaluate a sufficient number of samples with the appropriate matrices and challenges to satisfy the user that the chosen test method meets the user's criteria.
- It is also the user's responsibility to determine that any test methods and results meet its customers' and suppliers' requirements.
- As with any test method, results obtained from use of any Neogen Food Safety product do not constitute a guarantee of the quality of the matrices or processes tested.

### Assay Principles

Reveal Q+ for Ochratoxin is a single-step lateral flow assay based on a competitive immunoassay format. The extract is wicked through a reagent zone, which contains antibodies specific for ochratoxin conjugated to colloidal gold particles. If ochratoxin is present, it will be captured by the particle-antibody complex. The ochratoxin-antibody-particle complex then is wicked onto a membrane, which contains a zone of ochratoxin conjugated to a protein carrier. This zone captures any uncomplexed ochratoxin antibody, allowing the particles to concentrate and form a visible line. As the level of ochratoxin in a sample increases, free ochratoxin will complex with the antibody-gold particles. This allows less antibody-gold to be captured in the test zone. Therefore, as the concentration of ochratoxin in the sample increases, the test line density decreases. Algorithms programmed into the reader convert these line densities into a quantitative result displayed in ppb. The membrane also contains a control zone where an immune complex present in the reagent zone is captured by an antibody, forming a visible line. The control line will always form regardless of the presence of ochratoxin, ensuring the strip is functioning properly.

## Storage Requirements

Store kit components at room temperature (18–30°C, 64–86°F) for full shelf life. Test strips should remain capped in their original tubes until used (for optimal performance).

## Materials Provided

1. 25 Reveal Q+ for Ochratoxin test strips
2. 25 red conical sample dilution cups
3. 25 clear sample cups
4. 1 bottle of sample diluent

## Materials Recommended but Not Provided

1. Sample collection cups with lids (700004011 | 9428, 700004012 | 9428B)
2. 70% methanol solution (700002488 | 8055, 700002489 | 8056)
3. Agri-Grind grinder or equivalent (100001350 | 9401, 700004021 | 9453)
4. Microcentrifuge tubes (700003932 | 9172)
5. Mini centrifuge (700003963 | 9330)
6. Filter syringes (700002724 | 9420)
7. Sample collection tubes with caps (700002726 | 9421, 700002727 | 9421B)
8. Whatman #4 filter paper or equivalent (700004035 | 9519, 700006493 | 9429)
9. Pipettor, 200 µL (700004020 | 9488)
10. Pipettor, 100 µL (100001422 9860, 100001330 | 9272)
11. Pipette tips, 1-200 µL (100001352 9407, 100001353 | 9410, 700004099 | 9417)
12. Scale capable of weighing 5-50 g ±0.1 g (700004010 | 9427)
13. Timer (100001358 | 9426)
14. Reveal sample cup rack (700002734 | 9475)
15. Dispensing pump or graduated cylinder (700004020 | 9448, 100001367 | 9447)

## Precautions



1. The test strips must remain inside the stay-dry tube before use.
2. Methanol is highly flammable. Keep container tightly closed and away from heat, sparks, open flame and those who are smoking. It is toxic if swallowed, or if vapor is inhaled. Avoid contact with skin.
3. Store test kit at room temperature (18–30°C, 64–86°F) when not in use. Do not freeze.
4. Do not use kit components beyond expiration date.
5. Treat all used liquids, including sample extract, and labware as if contaminated with ochratoxin. Gloves and other protective apparel should be worn at all times.
6. To avoid cross-contamination, use clean glassware for each sample, and thoroughly wash all glassware between samples.
7. Ensure the device lot number and the curve details match the lot ID number selected on the reader. Failure to update the lot-specific QR code within the AccuScan® Pro and AccuScan Gold reader will cause inaccurate results.
8. Commodities tested should have a pH of 6–8. Excessively acidic or alkaline samples should be adjusted. For instructions on adjusting pH, contact Neogen Technical Services.
9. Please refer to the SDS information available at [neogen.com](http://neogen.com) for complete safety information on the assay and components.

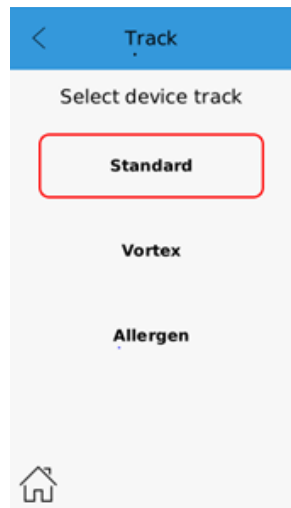
## AccuScan Reader Set Up

1. Enter the lot specific QR code by selecting scan QR from the main screen. Place the lot specific QR code into the white cartridge adapter labeled Cal/QR and place the cartridge into the reader.
2. The valid code will be scanned by the reader and provide information on the lot number and expiry date. Verify this information is correct and then add the lot ID to the reader by pressing add lot ID.  
**Note:** The lot ID for the current lot will now be stored with the test ID (e.g., ochratoxin) and can be selected when running a test.

## Raptor® Solo Reader Set Up

The Solo reader must be in standard mode to read the Reveal Q+ for Ochratoxin test strips.

1. From the main menu, select the  in the upper left hand corner
2. Select track replacement
3. Return to the home screen by pressing the  in the lower left hand corner
4. Insert the track replacement tool with the arrow facing towards you into the track in the unit
5. Gently pull up to remove the track
6. Insert the standard Endpoint testing track into the unit (track with the blue dot on the right hand side)



Testing track removal tool



Testing Track — EndPoint

## Sample Preparation

The sample to be tested should be collected according to accepted sampling techniques (see FGIS sampling protocol or contact your Neogen® representative). Obtain a representative sample (minimum 100 g). Grind the sample so at least 95% of the ground material passes through a 20- mesh sieve (about the particle size of fine espresso — 600–850 microns).

If not using Neogen's prepared solution, prepare a 70% methanol solution by mixing 7 parts methanol with 3 parts distilled or deionized water for each sample.

## Sample Extraction

1. Extract at a ratio of 1 part sample to 4 parts 70% methanol. For example, combine 10 g of ground sample with 40 mL of 70% methanol.
2. Vigorously shake, using hand or mechanical means (250 rpm) for 3 minutes, or blend for 1 minute.
3. Allow the sample to settle, then filter at least 4 mL with a filter syringe, or Whatman No. 1 filter paper. Alternatively, pipette sample into a 2.0 mL microcentrifuge tube and centrifuge for 30 seconds.
4. The sample is now ready for testing.

## Test Procedure

1. Place the appropriate number of red sample dilution cups and clear sample cups into a sample cup rack. Label cups if necessary.
2. Add 100  $\mu$ L of sample extract to the red sample cup.
3. Add 200  $\mu$ L of sample diluent to the red dilution cup with the sample extract. Mix by pipetting up and down 5 times.
4. Transfer 100  $\mu$ L of diluted sample extract into a new clear sample cup.
5. Place a new Reveal Q+ for Ochratoxin test strip with the sample end down into the sample cup and set timer for 9 minutes. Ensure the test strip comes into contact with liquid and begins to wick.
6. Remove the strip from the sample cup after it has developed for 9 minutes and read immediately (within 30 seconds).
7. Final result will be displayed on the unit. Samples greater than 20 ppb must be diluted and re-tested.

## Dilution Procedure

### **Samples greater than 20 ppb must be diluted and retested.**

1. Add 100  $\mu$ L sample filtrate to a sample collection tube.
2. Add 200  $\mu$ L 70% methanol solution to the sample collection tube. Mix well.
3. Place the appropriate number of red sample dilution cups and clear sample cups into a sample cup rack. Label cups if necessary.
4. Add 100  $\mu$ L of diluted sample extract (from step 2) to the red sample cup.
5. Add 200  $\mu$ L of sample diluent to the red dilution cup with the sample extract. Mix by pipetting up and down 5 times.
6. Transfer 100  $\mu$ L of diluted sample extract into a new clear sample cup.
7. Place a new Reveal Q+ for Ochratoxin test strip with the sample end down into the sample cup and set timer for 9 minutes. Ensure the test strip comes into contact with liquid and begins to wick.
8. Remove the strip from the sample cup after it has developed for 9 minutes and read immediately (within 30 seconds).
9. Final result will be displayed on the unit. Samples greater than 20 ppb must be diluted and re-tested. Final result displayed will need to be multiplied by 3.

## Reading Test Results

**Note:** Test strips should be read within 30 seconds of completion of the 9 minute incubation. Refer to AccuScan reader set up for test selection and set up information.

1. Select the assay type (e.g., ochratoxin) from the menu and ensure the device lot number matches the lot ID number selected on the reader. **Note:** Failure to update the lot-specific QR code will cause inaccurate results.
2. Fully insert the Reveal Q+ test strip into the black R-labeled cartridge adapter with the sample end first and results facing out.
3. Insert the cartridge with test strip upside-down into the AccuScan Gold reader (the test lines will face downward into the reader) or test-strip side up for the AccuScan Pro , or test strip facing outwards for Raptor Solo.. The reader will automatically begin analyzing the cartridge.  
**Caution:** Removing cartridge prior to completion can result in invalid readings.
4. The reader will analyze the test strip and results will be displayed and stored in the reader.

## Notes

1. Ensure device is fully inserted into cartridge.
2. Readings should be made within 30 seconds of the 9 minute incubation time. Readings after 9.5 minutes may be inaccurate due to over-development of the device.
3. The strips must be read using AccuScan Gold, or Raptor Solo in Standard mode.

## Performance Characteristics

1. Range of quantitation: 2–20 ppb

**Note:** Samples greater than 20 ppb must be diluted and re-tested. Results below the range of quantitation should be reported as less than 2 ppb.

## Validated and Verified Matrices

Neogen continues to validate new commodities. Please contact a representative for the latest validated commodity list.

## Customer Service

Neogen Customer and Technical Services can be contacted through [neogen.com](http://neogen.com) and product training is available by request.

## Safety Data Sheets (SDS) Information Available

SDS are available for all test kits at [neogen.com](http://neogen.com) or by calling 800.234.5333 or 517.372.9200.

## Terms and Conditions

Neogen's full terms and conditions are available online.

## Warranty

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